IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

September 19, 2007

In re application of	:	LU, Fumin
Serial No.	:	09/778,454
Filed	:	February 7, 2001
For	:	**SPUNBOND FABRICS AND LOW LAMINATES FROM ULTRA LOW VISCOSITY RESINS**
Examiner	:	PIZIALI, Andrew T.
Art Unit	:	1771
Our File No.	:	8988.3826

REPLY BRIEF IN RESPONSE TO SUPPLEMENT EXAMINER'S ANSWER

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P. O. Box 1450
Arlington, VA 22313-1450

Dear Sir:

In response to the Examiner's Supplemental Examiner's Answer of July 20, 2007, Appellant submits this Reply Brief as permitted by 37 C.F.R. § 41.41. A Notice of Appeal was filed on June 3, 2005. The Commissioner is authorized to charge any deficiency or credit any excess in these fees to Deposit Account No. 13-1130.

ARGUMENT

I. FIRST GROUND OF REJECTION – CLAIM 1 UNDER 35 U.S.C. § 102(b) OR UNDER 35 U.S.C. § 103(a)

The Examiner has erred in rejecting claim 1 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,476,911, issued to Morini et al. Claim 1 is a product-by-process claim. Morini teaches a composition of matter, namely crystalline propylene polymers that, among other attributes, have a melt flow rate (MFR) ranging from 600 to 2,000 g/10 min (grams per ten minutes) produced by the polymerization in the presence of a catalyst. The production of those polymers is accomplished at low temperature, generally ranging from 20 to 100 degree Celsius. See Morini et al, column 8, lines 23-25. Moreover, the Morini reference teaches against preparing crystalline propylene polymers using high temperatures, where the reference states: "[D]ue to the high temperatures used and the presence of radicals, the above process [thermodegradation] causes secondary reactions that can bring to the formation of branched polymer chains containing double bonds." See Morini et al, column 1, lines 44-48. The thermodegradation process discussed by Morini, which requires the use of high temperatures, is deemed undesirable by the reference where the reference states: "[T]here is a considerable decline of the physico-mechanical properties related to the molecular weights, such as flexural modulus and tensile properties." See Morini et al, column 1, lines 40-44. The temperature range which Morini teaches away from lies between 200 to 300 degrees Celsius. See Morini et al, column 1, lines 28-31.

Appellant's independent claim 1 claims and describes a "spunbond fabric having excellent softness and strength" and having filaments extruded at a temperature of 230 degrees Celsius. As described above, the Morini reference teaches that filaments, and thus fabrics,

created at temperatures as high as that claimed by Appellant have poor, undesirable physico-mechanical properties, including poor tensile (or strength) properties. Clearly, the Morini reference teaches away from Appellant's invention.

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." In re Gurley, 27 F.3d 551, 553 (Fed. Cir. 1994). In considering the disclosure of the Morini reference, one of ordinary skill in the art would not be led in the direction of the teachings of the Appellant's invention but would be led in a direction that diverges from the path taken by Appellant. The Federal Circuit, in an unpublished opinion, has found that one of ordinary skill in the art would not be motivated to combine prior references where one of the cited references teaches away from the combination advanced by the Examiner. In re Rudko, Civ. App. No. 98-1505 (Fed. Cir. May 14, 1999) (unpublished). Thus, the Examiner's rejection of claim 1 under 5 U.S.C. § 102(b) and 35 U.S.C. § 103(a) cannot be sustained.

In addition, the Morini reference does not include any suggestion or teaching to modify that invention as proposed by the Examiner. Where the Morini reference unambiguously teaches away from the use of high temperatures in creating filaments because of the purported decline in physico-mechanical properties, the Examiner cannot sustain the argument in favor of a modification using said high temperatures. "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 972 F.2d 1260, 1266 (Fed. Cir. 1992). In this instance, the reference relied upon by the Examiner does not suggest the

desirability of the proposed modification, but rather, teaches away from said modification. Thus, the Examiner's rejection of claim 1 under 5 U.S.C. § 102(b) and 35 U.S.C. § 103(a) cannot be sustained.

A thorough review of the Morini reference conclusively demonstrates that the Morini invention is not the product claimed and described by Appellant's claim 1. Appellant's product as described in claim 1 is a spunbond fabric produced from ultra-low viscosity polypropylene polymeric resin filaments having an MFR ranging from 350 to 750 g/10 min at 230 degrees Celsius. Due to the filament speed, which is greater than 4,000 m/min (meters per minute), the filaments of Appellant's spunbond fabric have fine diameters of 0.2 dpf (denier per filament) or lower. See page 3 of Appellant's specification. The Morini reference does not claim or describe a spunbond fabric comprised of ultra-low viscosity polypropylene polymeric resin filaments having these properties. Moreover, as explained above, the Examiner has failed to show that the Morini reference teaches a spunbond fabric made from ultra-low viscosity polypropylene polymeric resin filaments with these specific properties, i.e., having an MFR ranging from 350 to 750 g/10 min at 230 degrees Celsius. Thus, the Morini reference does not describe or claim the product or the use of the spunbond process that is taught in Appellant's invention that references high speed spinning above 4,000 m/min to achieve a non-woven spunbond fabric that is extremely soft yet strong. The spunbond fabric created by Appellant's high filament speed and high temperature filament extrusion is quite different from the Morini reference and demonstrates unexpected results where Morini teaches away the use of high temperatures in creating filaments. For these reasons, the Examiner's rejection of claim 1 under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) cannot be sustained.

Appellant's claimed product is a spunbond fabric, which is comprised of ultra-low viscosity polypropylene polymeric resin filaments having an MFR ranging from 350 to 750 g/10 min at 230 degrees Celsius, that has not been found in the prior art by the Examiner. The product described and claimed by the Morini reference is not remotely similar to Appellant's claimed product. In column 1, lines 15-20, Morini refers generally to spun-bonded processes. However, this reference in Morini conveys no information or teaching of Appellant's claimed spunbond fabric, but rather is a broad, general reference to the process without any factual description of the product made by the process. In column 3, lines 25-30, Morini refers vaguely to "fast spinning processes." This reference to fast spinning processes does not describe Appellant's claimed spunbond fabric. One is left to wonder, how "fast" are the "fast spinning processes" of Morini? The Morini reference provides no guidance in this regard. The Examiner's rejection under 35 U.S.C. § 102(b) is without any legal or factual basis to show anticipation. Each and every element of Appellant's claimed invention is not expressed, suggested, or implied in Morini. The Examiner seeks an alternative rejection of Appellant's claim 1 under 35 U.S.C. § 103(a) as being obvious over Morini. Under Graham v. John Deere Co., 383 U.S. 1, 148 U.S.P.Q. 459 (1966), which set forth the requirements for claim rejections under 35 U.S.C. § 103(a), the Examiner's rejection has no basis in law or in fact. The scope of the prior art cited is not relevant to Appellant's spunbond fabric as claimed in claim 1 because the reference teaches away from a key element (high temperature) of Appellant's invention. In reviewing the Morini reference, a person of ordinary skill in the art would be in the dark as to the composition of and how to create the spunbond fabric of Appellant claim 1.

Finally, the Examiner boldly discards an important step in the product by process for treating PP and cavalierly suggests that the claimed spunbond spinning rate step of 4,000 meters/minute will not be considered. The Examiner has provided no legal basis for the disregarding this claimed step in Appellant's product-by-process invention of independent claim 1. The structure implied by the process should be considered in reviewing the patentability of a product-by-process claim. Appellant's claim 1 asserts "excellent softness and strength" in the spunbond fabric. See In re Garnero, 412 F.2d 276, 279, 162 U.S.P.Q. 221, 223 (C.C.P.A. 1979). Therefore, the Examiner's rejection of claim 1 under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) cannot be sustained.

II. SECOND GROUND OF REJECTION - CLAIM 3 UNDER 35 U.S.C. § 102(e) OR UNDER 35 U.S.C. § 103(a)

The Examiner has erred in rejecting claim 3 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,548,431, issued to Bansal et al. Appellant maintains the arguments previously presented in his Appeal Brief and Reply Brief. Appellant's invention is not anticipated by the Bansal reference. Appellant uses only polyethylene terephthalate resins with intrinsic viscosity of less than 0.55 dl/g to form the extruded filaments comprising the spunbond fabric of Appellant's invention as described in claim 3. The Bansal reference teaches away from Appellant's invention by describing and claiming a melt spun sheet comprised of multiple component filaments. See Bansal et al., column 2, lines 38-41; column 3, lines 7-15; column 11, lines 38-59; column 12, lines 14-24; claim 12; and claim 13. Specifically, the Bansal reference uses two separate polymers to create a single filament. In Appellant's claim 3, polyethylene terephthalate is the only component utilized in the extruded filaments comprising the spunbond fabric. The Bansal

reference does not teach or suggest the use of a single resin filament of low viscosity to make a spunbond fabric. Appellant has discovered the claimed product with a spunbond process using a single polymer to create a filament for use in producing spunbond fabrics having excellent softness, strength, barrier properties, and air breathability. Because claim 3 uses the phrase "consisting of," the reference cannot be prior art as to anticipation since "consisting of" is a closed phrase that does not permit the introduction of additional elements or process steps into the body of said claim. Ex parte Davis, 80 U.S.P.Q. 448, 450 (Pat. Off. Bd. App. 1948). Therefore, the Examiner's rejection of claim 3 under 35 U.S.C. § 102(e) cannot be sustained.

Further, the Examiner's rejection of claim 3 under 35 U.S.C. § 103(a) of obviousness is clearly negated by the fact that the reference teaches that you must use a combination of polymers for each single filament created. A person of ordinary skill in the art would not arrive at Appellant's claimed product reviewing the Bansal reference. Appellant's invention is not obvious in light of Bansal because the reference teaches away from Appellant's claimed spunbond fabric. "A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." In re Gurley, 27 F.3d 551, 553 (Fed. Cir. 1994). In considering the disclosure of the Bansal reference, one of ordinary skill in the art would not be led in the direction of the teachings of the Appellant's invention but would be led in direction that diverges from the path taken by the Appellant. The Federal Circuit, in an unpublished opinion, has found that one of ordinary skill in the art would not be motivated to combine prior references where one of the cited references teaches away from the combination advanced by the Examiner. In re Rudko, Civ. App. No. 98-

1505 (Fed. Cir. May 14, 1999) (unpublished). Thus, the Examiner's rejection of claim 3 under 35 U.S.C. § 103(a) cannot be sustained.

III. THIRD GROUND OF REJECTION - CLAIM 5 UNDER 35 U.S.C. § 103(a)

The Examiner has erred in rejecting claim 5 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,688,468, issued to Lu, in view of U.S. Patent No. 6,268,302, issued to Ofosu et al. Appellant maintains the arguments previously presented in his Appeal Brief and Reply Brief. The Examiner currently argues that the Ofosu reference does not limit the upper value of that invention's viscosity range. Appellant respectfully observes that the Examiner has seemingly misunderstood Appellant's argument as set forth below. Appellant's viscosity values are most definitely lower than the viscosity values stated in Ofosu. Appellant's claim 5 states that the relative viscosity is below 2.2. On page 4 of the Supplemental Examiner's Answer, the Examiner correctly observes that "Ofosu discloses that the viscosity is at least 2.5 x 10^3 dynes.sec/cm^2 (column 5, lines 38-51), therefore, Ofosu does not limit the upper value of the viscosity range." The Examiner, then, agrees with Appellant's position that Appellant's invention is not obvious in view of the Ofosu reference, which discloses that the viscosity value of that invention is "at least," or in other words "greater than," 2.5 x 10^3 dynes.sec/cm^2. The phrase "at least" means "at a minimum" or great than or equal to." The Ofosu reference viscosity value is greater than the viscosity value claimed and described in Appellant's claim 5. Thus, the Examiner's rejection of claim 5 under 35 U.S.C. § 103(a) cannot be sustained.

Appellant has incorporated the Lu reference into the specification on page 3, lines 7-8. The Lu patent does not teach the use of an ultra-low viscosity polymeric resin. Moreover, in column 5, lines 38-51, the Ofosu reference specifically limits the melt flow rate between 50 g/10

min and 150 g/10 min at a defined temperature. Clearly, the combination of the Ofosu reference with the Lu reference does not produce Appellant's claimed invention as described in claim 5. Appellant has used an ultra-low viscosity resin (the polyamide PA6 nylon 6) not suggested in Ofosu in conjunction with generating filament speeds above 4,000 meters per minute.

The Examiner relies upon In re Boesch, 617 F.2d 272, 205 U.S.P.Q. 215 (C.C.P.A. 1980), in stating that Appellant's invention is obvious where the discovery of an optimum value of a result effective variable involves only routine skill in the art. The range of constituents claimed in the Boesch case was overlapped by ranges found in the prior art. In In re Boesch, the prior art was silent as to a signal-like phase present in the composition. With respect to claim 5, the relative viscosity of Appellant's invention is completely different than the result effective variable teaching in the Boesch case. In the present case, there is no overlapping of claimed values and, in fact, the viscosity values disclosed in Ofosu are significantly different and lower than the relative viscosity values claimed by Appellant in claim 5. The Examiner is erroneously using hindsight to arrive at Appellant's claimed invention. In re Rouffet, 149 F.3d 1350, 47 U.S.P.Q.2d 1453 (Fed. Cir. 1998).

Hindsight reconstruction may not be used to cobble together various elements of an invention that are cited in prior art references to support a rejection based upon obviousness under 35 U.S.C. § 103(a). The Federal Circuit has determined that "[i]t is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." In re Fritch, 972 F.2d 1260, 1266 (Fed Cir. 1992). In rejecting claim 5, the Examiner has done just that; that is to say, the Examiner has used the Appellant's claim as a template to stitch together teachings from the prior

art to find the Appellant's invention obvious under 35 U.S.C. § 103(a). None of the prior art references cited by the Examiner contains any suggestion to modify the inventions described by the Lu and Ofosu references in the manner set forth by the Examiner.

The Examiner has taken a per se rule from In re Boesch, 617 F.2d 272 (C.C.P.A. 1980), that discovering an optimum value of a result effective variable involves only routine skill in the art, and has applied the per se rule to reject Appellant's claim 5. "[T]here are not [In re Boesch] obviousness rejections. . . but rather only section 103 obvious rejections" in which facts in the record must support a legal conclusion of obviousness. Ex parte Johnson, 1997 WL 1941498 (Bd. Pat. App. & Interf. 1997). In Ex parte Johnson, the Board held that its "precedents do not establish any per se rules of obviousness, just as those precedents themselves expressly declined to create such rules." Id. The Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17 (1966), case and 35 U.S.C. § 103 require a fact-specific analysis of the Appellant's claims and the prior art to determine obviousness. Ex parte Johnson, 1997 WL 1941498 (Bd. Pat. App. & Interf. 1997); Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17 (1966); 35 U.S.C. § 103. In the present case, the Examiner has forgone the laborious fact-specific analysis of the claims compared to the teachings of the prior art reference and has rejected claim 5 on the basis of a per se rule taken from the Boesch case. "Rejections based on 35 U.S.C. § 103(a) must rest on a factual basis," and "[i]n making such a rejection, the examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis." Ex parte Makutonin, 2003 WL 23014547 (Bd. Pat. App. & Interf. 2003); In re Warner, 379 F.2d 1011, 1017 (C.C.P.A. 1967). Clearly, claims rejections based upon per se

rules gathered from judicial precedent are not permissible as the fact-specific analysis of an applicant's claims against the disclosures of the prior art is an indispensable prerequisite to a finding of obviousness under 35 U.S.C. § 103. For these reasons, the Examiner's rejection of claim 5 under 35 U.S.C. 103(a) cannot be sustained.

IV. FOURTH GROUND OF REJECTION – CLAIM 7 UNDER 35 U.S.C. § 102(b) OR UNDER 35 U.S.C. § 103(a)

The Examiner erred in rejecting claim 7 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over WO 96/29460, issued to Bailey et al. As stated in one element of Appellant's claim 7, the polyethylene resin filaments of Appellant's spunbond fabric have an MFR of 250 to 750 g/10 min at 230 degrees Celsius. Appellant's claimed product is a spunbond fabric having excellent softness barrier and air breathability. To sustain an anticipation rejection under 35 U.S.C. § 102(b), the Examiner is required to demonstrate "the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim." Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick, Co., 730 F.2d 1452, 1458 (Fed. Cir. 1984); see also W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1554 (Fed. Cir. 1983). The Bailey reference does not disclose each element of claim 7, and therefore, does not anticipate the Appellant's invention. For example, the Bailey reference states that the most preferred MFR for linear low density polyethylenes is "above 60 grams per 10 minutes (at 190° C)." See Bailey et al., page 11, lines 7-10. However, Bailey describes the fabric claimed and described in U.S. Patent No. 5,173,356 ("the '356 Patent") as the preferred form of fabric providing an adhesive binder for carpeting. A review of the '356 Patent completely contradicts the Examiner's position. Specifically, the non-woven fabric described in the '356 patent has an MFR that does not exceed

80 g/10 min. See the '356 Patent, column 8, lines 41-48. The MFR described and claimed in the '356 Patent is much lower than that required by Appellant in claim 7, and therefore, the product described in Bailey differs from Appellant's claimed product.

In the current Supplemental Examiner's Answer, the Examiner attempts to argue that Bailey does not limit the MFR. Appellant respectfully disagrees. On page 11, lines 24-27, Bailey incorporates the '356 Patent by reference. By incorporating the '356 Patent by reference, Bailey also incorporated all of the limitations and elements of that patent, including the limitation that the non-woven fabric described in said patent has an MFR that does not exceed 80 g/10 min. Clearly, the Bailey reference is limited by the limitations of the '356 Patent, which Bailey has incorporated by reference. Whether the Bailey invention's MFR would or would not increase at the temperature claimed by Appellant is irrelevant. The Bailey reference is bound by the limitations stated within the '356 Patent where Bailey incorporated those limitations by reference. See Bailey et al., page 11, lines 24-27. Thus, the Examiner's rejection of claim 7 under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) cannot be sustained.

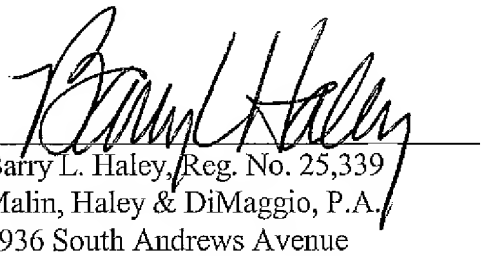
V. FIFTH GROUND OF REJECTION – CLAIM 8 UNDER 35 U.S.C. § 103(a)

The Examiner's rejection of claim 8 under 35 U.S.C. 103(a) as being unpatentable over W.O. 96/29460, issued to Bailey et al. As discussed in section IV above, in which Bailey was cited as a reference in the Examiner's rejection of claim 7, Appellant reiterates the statements made in section IV in response to the rejection of claim 8.

Appellant's claim 8 depends upon independent claim 7, and thus, incorporates by reference all of the elements and limitations of independent claim 7. 35 U.S.C. § 112, fourth paragraph. On page 7 of the original Answer Brief, the Examiner acknowledges that the Bailey

reference does not teach that "the spunbonded fabric can be a multiple layer fabric consisting of layers of the filaments of the same resins" as is disclosed in Appellant's claim 8. Moreover, Appellant's novel and unknown properties of the claimed spunbond fabric, i.e., the extruded polyethylene resin filaments (of which the spunbond fabric is comprised) having a melt flow rate between 250 and 750 g/10 min at 230 degrees Celsius, which are described in independent claim 7, are included as part of the limitations of claim 8. Therefore, it would not have been obvious to one of ordinary skill in the art to choose the particular extruded polyethylene filaments invented by Appellant as a part of the multiple layer fabric in dependent claim 8 for the simple reason that the particular extruded polyethylene filament having an MFR between 250 and 750 g/10 min at 230 degrees Celsius was unknown but for Appellant's disclosure in the application. "[O]ne cannot choose from the unknown." In re Ochiai, 71 F.3d 1565, 1570 (Fed. Cir. 1995), citing In re Mancy, 499 F.2d 1289, 1293 (C.C.P.A. 1974). For the foregoing reasons, the Examiner's rejection of claim 8 under 35 U.S.C. § 103(a) is erroneous and cannot be sustained.

Respectfully submitted,



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